CLAIMS

I claim:

1. A method for removing a polysilicon layer from a non-silicon layer, comprising the steps of:

providing a structure having a non-silicon layer formed thereover;

forming a first polysilicon layer upon the non-silicon layer; and

removing the first polysilicon layer from over the non-silicon layer to expose the non-silicon layer using a NH_4OH:DIW dip solution process having a NH_4OH:DIW ratio of from about 1:2 to 1:8;

whereby the non-silicon layer is substantially unaffected by the NH_4OH:DIW dip solution process.

2. The method of claim 1, wherein the NH_4OH:DIW dip solution process is conducted at a temperature of from about 25 to 60°C; the NH_4OH:DIW dip solution process having a polysilicon:non-silicon selectivity of at least about 680:1 and a polysilicon etch rate of from about 560 to 580Å/minute

3. The method of claim 1, wherein the NH_4OH:DIW ratio is from about 1:4 to 1:6; and the NH_4OH:DIW dip solution process is conducted at a temperature of from about 30 to 50°C and a polysilicon:non-silicon selectivity of at least about 1160:1.

4. The method of claim 1, wherein the NH_4OH:DIW ratio is about 1:5; and the NH_4OH:DIW dip solution process is conducted at a temperature of about 40°C and a polysilicon:non-silicon selectivity of at least about 1650:1.

5. The method of claim 1, wherein the NH_4OH:DIW dip solution process is conducted at a polysilicon:non-silicon selectivity of about 680:1.

6. The method of claim 1, wherein and the NH_4OH:DIW dip solution process is conducted at a polysilicon:non-silicon selectivity of about 1650:1.

7. The method of claim 1, wherein and the NH_4OH:DIW dip solution process is conducted at a polysilicon:non-silicon selectivity of about 11,600:1.

8. The method of claim 1, including the step of then forming a second polysilicon over the exposed non-silicon layer.

9. The method of claim 1, including the step of removing any native oxide from the first polysilicon layer using an HF dip before removal of the first polysilicon layer.

10. The method of claim 1, including the steps of:

removing any native oxide from the first polysilicon layer using an HF dip before removal of the first polysilicon layer; and

rinsing the first polysilicon layer with DIW immediately after the removal of any native oxide.

11. The method of claim 1, wherein the non-silicon layer is comprised of a material selected from the group consisting of: silicon oxide; an ONO composite layer; nitride; TEOS oxide and HTO oxide.

12. The method of claim 1, wherein the first polysilicon layer is from about 640 to 780Å thick.

13. The method of claim 1, wherein the first polysilicon layer is from about 675 to 745Å thick.

14. The method of claim 1, wherein the first polysilicon layer is about 710Å thick.

15. The method of claim 1, wherein completion of the NH_4OH:DIW dip solution process is visually observable.

16. A method for removing a polysilicon layer from a silicon oxide layer, comprising the steps of:

providing a structure having a silicon oxide layer formed thereover;

forming a first polysilicon layer upon the silicon oxide;

using an HF dip to remove any native oxide from over the first polysilicon layer;

rinsing the first polysilicon layer with DIW;

removing the first polysilicon layer from over the silicon oxide layer to expose the silicon oxide layer using a NH_4OH:DIW dip solution process having a NH_4OH:DIW ratio of from about 1:2 to 1:8 at a temperature of from about 25 to 60°C; the NH_4OH:DIW dip solution process having a polysilicon:non-silicon selectivity of at least about 680:1 and a polysilicon etch rate of from about 560 to 580Å/minute; and

forming a second polysilicon layer over the exposed silicon oxide layer;

whereby the silicon oxide layer is substantially unaffected by the NH_4OH:DIW dip solution process.

17. The method of claim 16, wherein the NH_4OH:DIW ratio is from about 1:4 to 1:6; the temperature is from about 30 to 50°C; and the polysilicon:silicon oxide selectivity is at least about 1160:1.

18. The method of claim 16, wherein the NH_4OH:DIW ratio is about 1:5; the temperature is about 40°C; and the polysilicon:silicon oxide selectivity is at least about 1650:1.

19. The method of claim 16, wherein the polysilicon:silicon oxide selectivity is about 680:1.

20. The method of claim 16, wherein the polysilicon:silicon oxide selectivity is about 1650:1.

21. The method of claim 16, wherein the polysilicon:silicon oxide selectivity is about 11,600:1.

22. The method of claim 16, including the step of rinsing the exposed silicon oxide layer with DIW and drying the exposed silicon oxide layer before formation of the second polysilicon layer over the exposed silicon oxide layer.

23. The method of claim 16, whereby the HF dip is conducted for about 30 seconds at about 25°C using a 2.5% HF solution.

24. The method of claim 16, whereby the DIW rinse of the HF dipped first polysilicon layer is conducted for about 5 minutes and the DIW rinse of the exposed silicon oxide layer is conducted for about 5 minutes.

25. The method of claim 16 whereby the silicon oxide layer is from about 22 to 28Å thick.

26. The method of claim 16 whereby the silicon oxide layer is from about 24 to 26Å thick.

27. The method of claim 16 whereby the silicon oxide layer is about 25Å thick.

28. The method of claim 16, wherein completion of the NH_4OH:DIW dip solution process is visually observable.

29. A method for removing a polysilicon layer from a silicon oxide layer, comprising the steps of:

providing a structure having a silicon oxide layer formed thereover;

forming a first polysilicon layer upon the silicon oxide;

using an HF dip to remove any native oxide from over the first polysilicon layer;

rinsing the first polysilicon layer with DIW;

removing the first polysilicon layer from over the silicon oxide layer to expose the silicon oxide layer using a NH_4OH:DIW dip solution process having a NH_4OH:DIW ratio of from about 1:2 to 1:8 at a temperature of from about 25 to 60°C; the NH_4OH:DIW dip solution process having a polysilicon:non-silicon selectivity of at least about 680:1 and a polysilicon etch rate of from about 560 to 580Å/minute;

rinsing the exposed silicon oxide layer;

forming a second polysilicon layer over the exposed rinsed silicon oxide layer;

whereby the silicon oxide layer is substantially unaffected by the NH_4OH:DIW dip solution process.

30. The method of claim 29, wherein the NH_4OH:DIW ratio is from about 1:4 to 1:6; the temperature is from about 30 to 50°C; and the polysilicon:silicon oxide selectivity is at least about 1160:1.

31. The method of claim 29, wherein the NH_4OH:DIW ratio is about 1:5; the temperature is about 40°C; and the polysilicon:silicon oxide selectivity is at least about 1650:1.

32. The method of claim 29, wherein the polysilicon:silicon oxide selectivity is about 680:1.

33. The method of claim 29, wherein the polysilicon:silicon oxide selectivity is about 1650:1.

34. The method of claim 29, wherein the polysilicon:silicon oxide selectivity is about 11,600:1.

35. The method of claim 29, including the step of drying the exposed rinsed silicon oxide layer before formation of the second polysilicon layer over the exposed rinsed silicon oxide layer.

36. The method of claim 29, whereby the HF dip is conducted for about 30 seconds at about 25°C using a 2.5% HF solution.

37. The method of claim 29, whereby the DIW rinse of the HF dipped first polysilicon layer is conducted for about 5 minutes and the DIW rinse of the exposed silicon oxide layer is conducted for about 5 minutes.

38. The method of claim 29 whereby the silicon oxide layer is from about 22 to 28Å thick.

39. The method of claim 29 whereby the silicon oxide layer is from about 24 to 26Å thick.

40. The method of claim 29 whereby the silicon oxide layer is about 25Å thick.

41. The method of claim 29, wherein completion of the NH_4OH:DIW dip solution process is visually observable.